

REMARKS/ARUGMENTS

Upon entry of this reply, claims 1-32 will remain pending, with claims 1 and 15 being independent claims.

Reconsideration and allowance of the application are respectfully requested.

Remailing Of Office Action

Applicants express appreciation for the mailing of a new Office Action on the merits which addresses each of the pending claims and reset the statutory period for response from the December 17, 2004 mailing date of the new Office Action.

Formal Matters

The Office Action does not acknowledge the claim of foreign priority nor receipt of the certified copy in this national stage application. Applicants therefore respectfully request the acknowledgment of the claim of foreign priority as well as receipt of the certified copy in this national stage application. In this regard, Applicants note that a copy of the Form PCT/IB/304 was submitted with the papers when entering the national stage on February 1, 2002.

Applicant acknowledges the receipt of the additional copy of the Office Action from the Patent and Trademark Office wherein an initialed copy of the Form PTO-1449 submitted with Applicant's Information Disclosure Statement is attached. Applicants further note that a copy of this initialed form was previously forwarded with a copy of the incomplete Office Action mailed October 27, 2004. Accordingly, the Examiner's consideration of the Information Disclosure Statement is of record.

Rejections Based Upon Rotter, U.S. Patent No. 4,123,332

The following rejections are set forth in the Office Action:

Claims 15-22 and 29-32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Rotter, U.S. Patent No. 4,123,332.

Claims 1-14 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rotter, U.S. Patent No. 4,123,332.

In these grounds of rejection, the Examiner asserts that Rotter discloses a similar device to that recited in Applicants' claims. Regarding the anticipation rejection, the rejection asserts that Rotter discloses the same structure as recited by Applicants, but does not discuss each and every feature recited in Applicants' claims including "at least one device for cracking hydrocarbons and a device for gasification of solids". In fact, in the obviousness rejection, the Examiner (page 7, at the end of paragraph 6) states that such structure is not actually present, but provides a naked assertion that it would have been obvious to one having ordinary skill in the art.

Regarding Applicant's method, the Examiner provides theory as to why Applicant's recited energy input is inherent or obvious in Rotter.

In response, Applicants note with respect to the anticipation rejection that Applicants' independent claim 15 is directed to apparatus for removing recoverable waste products and non-recoverable waste products, comprising a tubular container with a feed opening for recoverable and non-recoverable waste products as material on one end, a discharge opening for the exhaust gas-solids mixture on another end, a shaft arranged centrally through the container, devices positioned on said shaft, and at

least one of a device for cracking hydrocarbons and a device for gasification of solids from the container positioned after the discharge opening of the container.

In contrast, as stated in the Summary of the Invention section of Rotter, Rotter is directed to a pyrolytic conversion process and apparatus wherein the material to be treated (in shredded, comminuted or particulate form) are continuously introduced into the inlet end of an elongated, cylindrical, and substantially horizontal pyrolysis reaction zone under conditions to effectively exclude oxygen containing gases. The material entering the reaction zone is continuously conveyed with agitation through the zone to its outlet end as a material's bed by a plurality of paddle-like impellers mounted on a rotatable shaft extending through the zone. The bed of solid material is heated to a pyrolyzing temperature of from about 400°C to about 900°C by radiant and conductive heat transfer. The material comprising the moving bed within the reaction zone is thermally and progressively broken down into valuable products including gases, liquids and solid carbonaceous residues.

More specifically, in Rotter a method and device are disclosed for pyrolysis of solid materials to form combustible gas, hydrocarbons and solid residues. To this end, the source materials are introduced into the reaction zone of a horizontally disposed container free of oxygen-containing gases. A material bed is formed with the material being agitated and thereby a combustible mixture of an oxygen-containing combustion gas and fuel is introduced into the reaction zone. Then, the combusted gases and solid residue are removed, whereby the gases not yet combusted and the hydrocarbons are removed under conditions effectively excluding oxygen-containing gases.

In contrast to Rotter, in Applicants' invention the waste products are not pyrolyzed, but thermally decomposed. This thermal decomposition is a controlled process between pyrolysis and combustion. This makes it possible not to have to conduct the process under absolutely gas-tight conditions. In addition to the solid decomposition products, a crude gas is also produced with thermal decomposition. In contrast to Rotter, these two products are jointly extracted as an exhaust gas-solids mixture from the container through the discharge opening and fed through ducts to a device for cracking the long-chain hydrocarbons and/or to a device for the gasification of the solids. In this way the exhaust gases and solids from the container are processed for energy recovery.

In Rotter, structure is not provided for the joint discharge of an exhaust gas/solids mixture. Instead, distinctly separate outlet openings are present in the device components 47 and 26 in Fig. 1 (see also claim 17 (f) and (g)). Applicants note that entrained gases can be removed at 49 in Rotter from the solids; however, this removal does not comprise a discharge opening for exhaust gas-solids mixture. At most, Rotter discloses structure for separately removing gases and solids, with entrained gases being removed from the solids at 49.

Applicants' device is constructed and arranged so that pyrolysis of the source materials is not carried out. Instead, there is a controlled thermal decomposition between pyrolysis and combustion. To this end different criteria needs to be considered which Rotter did not need consider, since he wants only to pyrolyze his source materials.

For example, Rotter does not teach or suggest at least one of a device for cracking hydrocarbons and a device for gasification of solids from the container positioned after the discharge opening of the container as recited in Applicants' independent claim 15. In this regard, in the obviousness rejection utilizing Rotter it is admitted that, "The gas-liquid recovery system is not disclosed specifically as a gasifier or cracking apparatus...." Accordingly, for this additional reason, the anticipation rejection is without appropriate basis and shown be withdrawn. In this regard, if the rejection is maintained, the Examiner is respectfully requested to indicate how each and every feature of Applicants' claims is disclosed in Rotter. Moreover, if the rejection is modified, Applicants expect that the next rejection would not be a final rejection.

Regarding the obviousness rejection, Applicants note that Applicants' independent claim 1 is directed to a method for removing recoverable waste products and non-recoverable waste products, comprising feeding recoverable waste products and non-recoverable waste products into one end of a substantially horizontally fixed container as material, continuously or discontinuously transporting the material to another end of the container, 60 - 80% of energy input being carried out on the material in an area of a first quarter of the container based upon the one end of the container into which the material is fed, and a remaining 20 - 40% of energy input being transferred to the material in other areas of the container, discharging an entire exhaust gas-solids mixture from the container, and subsequently subjecting the exhaust gases and the solids to an energy recovery process.

Applicants' respectfully submit for reasons noted above that Rotter does not teach or suggest Applicants' invention as recited in Applicants' claims.

For example, Applicants respectfully submit that the heating characteristics as recited in Applicants' claims are not inherent in Rotter, and are not obvious based upon Rotter.

For example, in Rotter the burners are located at the rear of the reaction vessel. In particular, as disclosed beginning at column 6, line 22, Rotter discloses the placing a starter burner 36 at the rear of the container, and in operational pyrolysis mode, locating a plurality of burners 38, 39 and 40 at the rear of the reaction vessel. Thus, in contrast to Applicants' recited 60 - 80% of energy input being carried out on the material in an area of a first quarter of the container based upon the one end of the container into which the material is fed, and a remaining 20 - 40% of energy input being transferred to the material in other areas of the container, Rotter places a higher energy input at the rear. Certainly, a higher energy input at the rear of a reaction vessel does not teach or suggest Applicants' method where the lowest energy input occurs.

Moreover, the three burners 38, 39 and 40 of Rotter (all located in the vicinity of the material outlet end of the system) are positioned to apply energy in an annular, spiraling arrangement. Thus no differentiation of the amount of energy regarding its input point along the length of the reaction vessel is made in Rotter.

Thus, when the prior art discloses in pyrolysis installations to apply energy uniformly or clearly and exclusively in the rear part of the container, there is no motivation to one having ordinary skill in the art to arrive at Applicants' method as

recited in Applicants' claims. If according to the Examiner's statement it is desirable according to Rotter to heat the material quickly, Rotter has found and shown the solution for this by utilizing the burner formation at the rear of the reaction vessel in the vicinity of the material outlet.

Still further, as noted above, Rotter does not teach or suggest discharging an entire exhaust gas-solids mixture from the container, and subsequently subjecting the exhaust gases and the solids to an energy recovery process. In Rotter, gases and vapors are guided through a recovery system in which the condensible vapors and non-condensable gases are separated from one another. Subsequently only the combustible gases are guided back into the system as a fuel source for the pyrolysis burners (see column 7, line 55 through column 8, line 2). No information is given on whether and what should or can be done with the liquid hydrocarbons.

Accordingly, the assertions in the rejection that on the basis of Rotter one skilled in the art would be capable of providing recovery means which would include specifics like a gasifier or cracking apparatus in order to further treat the gases from the pyrolysis of waste thus rendering Applicants' invention as a whole obvious absent criticality in showing is without appropriate basis. If this ground of rejection is maintained, the Examiner is respectfully requested to specifically point to disclosure in the prior art which shows the inclusion of such process steps to be known in environments as disclosed by Rotter, and to specifically indicate how the combination is being made. In this regard, the Examiner is reminded that a showing of criticality is not needed unless a prima facie case of obviousness has been established. In the instant situation, a prima

facie case of obvious has not been established, especially when the rejection does not point to any documentary evidence to support the assertions therein.

Thus, Applicants respectfully submit that the only teaching or suggestion that would lead one having ordinary skill in the art to arrive at Applicants' invention is within Applicants' disclosure, and the use of such disclosure by the Examiner is improper. In order to support the conclusion that the claimed invention is either anticipated or rendered obvious over the prior art, the prior art must either expressly or inherently teach the claimed invention or the Examiner must present a convincing line of reasoning why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. Ex parte Clapp, 227 U.S.P.Q. 972 (B.O.A. 1985).

Additionally, each of the dependent claims is patentable over the prior art of record in view of the fact that each of these dependent claims includes the limitations of either independent claim 1 or 15. Moreover, each of the dependent claims is patentable over the prior art of record because it would not have been obvious to one having ordinary skill in the art to incorporate such dependent claim features into the invention as more broadly recited in the independent claims.

For the reasons set forth above, the anticipation and obviousness rejections should be withdrawn, and each of the claims indicted to be allowable over the prior art of record.

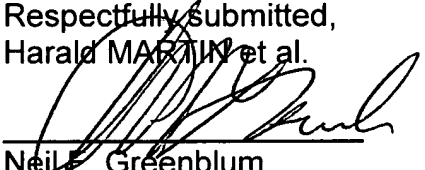
CONCLUSION

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections of record, and allow each of the pending claims.

Applicants therefore respectfully request that an early indication of allowance of the application be indicated by the mailing of the Notices of Allowance and Allowability.

Should the Examiner have any questions regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,
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